

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CHEMISORPTION OF HYDROGEN AND OXYGEN ON PLATINUM GOLD ALLOYS -U-
AUTHOR--(04)-RADYUSHKINA, K.A., BURSHEYN, R.KH., TARASEVICH, M.R.,
KUPRINA, V.V.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA, FEB. 1970, 6, (2), 234-238
DATE PUBLISHED----FEB 70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--CHEMISORPTION, HYDROGEN, OXYGEN, PLATINUM ALLOY, GOLD ALLOY,
GAS ADSORPTION, BIBLIOGRAPHY, METAL CONTAINING GAS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0349 STEP NO--UR/0366/70/006/00170234/0238
CIRC ACCESSION NO--AP0124106

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124106

ABSTRACT/EXTRACT--(U) GP-U- ABSTRACT. THE CHEMISORPTION OF H AND D ON THE SURFACE OF PT AU ALLOYS WAS STUDIED AS A FUNCTION OF ALLOY COMPOSITION IN ACID AND ALKALI SOLUTIONS. METHODS EMPLOYED INCLUDED X RAY SPECTRAL ANALYSIS AND THE PLOTTING OF CP POTENTIDYNAMIC CHARGING CURVES. IN THE CASE OF D THE ALLOY COMPONENTS ACTED ADDITIVELY IN BOTH TYPES OF SOLUTION. IN THE CASE OF H THE DEGREE OF ADSORPTION REMAINED INDEPENDENT OF ALLOY COMPOSITION UP TO 50PERCENT AU. FOR HIGHER PROPORTIONS OF AU THE EFFECT OF THE BETA PHASE OF THE ALLOY BECAME APPRECIABLE AND THE AMOUNT OF CHEMISORBED H DIMINISHED.

UNCLASSIFIED

USSR

UDC 632.95

ABRAMOVA, K. A., KHASKIN, I. G., RUDNEV, G. K., SHIRANKOV, D. F.,
SHOMOVA, YE. A., GRIB, O. K., KUPRINA, ZH. S.

"Pesticide"

USSR Author's Certificate No 252756, filed 10 Jul 68, published
12 Feb 70 (from RZh-Zhimiya, No 18, 25 Sep 70, Abstract No 16E565 P,
by P. V. Popov)

Translation: Esters of alpha-chlorocinnamic acid with general
formula PhCH=CClC(O)OR (I) (R = Me, Et, or Ph) exhibit fungicidal
and herbicidal properties. In toxicological experiments I (R = Me
or Et) suppressed development of colonies of *Alternaria*, *Botrytis*,
Cladosporium, *Penicillium*, *Rhizoctonia*, and *Verticillium* on potato-
dextrose agar in most cases no less vigorously than did Pigon and
TMTD / tetramethyithiuram disulfide /. As herbicides, I (R = Me or
Ph) act selectively on dicotyledonous plants (beans, sunflower,
buckwheat, beet, and mustard); winter wheat and oats of the cereal
crops are resistant, corn is the most sensitive.

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USSR

UDC 632.952

KUPRINA, ZH. S., Ukrainian Scientific Research Institute of Plant Protection

"Effectiveness of Using New Compounds to Combat Kernel Smut in Winter Wheat"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 10 (84), Oct 70, pp 40-41

Abstract: Phenothiram, phenothiram-molybdate, mercurohexane, polychloronitrobenzene, 50% polychloronitrobenzene with thiuram (USSR), Germal (Czechoslovakia), and quinolate-15 (France) were compared with tetramethylthiuram disulfide and granozan (Ceresan) for effectiveness against kernel smut in winter wheat. It was found that all compounds tested increased the germination of wheat seeds. Most effective against kernel smut were 25% polychloronitrobenzene, 50% polychloronitrobenzene with thiuram, mercurohexane, quinolate-15 and granozan. Tetramethylthiuram disulfide, Germal, phenothiram and phenothiram-molybdate were less effective, particularly for late plantings.

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USSR

UDC: 621.373:530.145.6

MIKAELIAN, A. L., KUPRISHOV, V. F., TURKOV, Yu. G., ANDREYEV, Yu. V.,
SHCHERBAKOVA, A. A.

"Investigation of Emission From a Ruby Laser With Automatic Q-Switching"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1,
Moscow, 1971, pp 102-109 (from RZh-Radiotekhnika, No 5, May 71, Abstract
No 5D182)

Translation: The paper presents the results of a study of the effects of
giant pulse emission in a ruby laser which does not contain special switching
elements. Automatic Q-switching is achieved by using unstable configurations
of the optical cavity. Seven illustrations, bibliography of five titles.
Resumé.

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1/2 032 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--A NEW METHOD FOR THE GENERATION OF A GIANT PULSE IN LASERS -U-

AUTHOR--(05)-MIKAELIAN, A.L., KUPRISHOV, V.F., TURKOV, YU.G., ANDREYEV,
YU.V., SHCHERBAKOVA, A.A.
COUNTRY OF INFO--USSR

SOURCE--MGSCCH, PIS'MA V ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY
FIZIKI, VOL 11, NO 5, 5 MAR 70, PP 244-246
DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GIANT PULSED LASER, RUBY LASER, REFRACTIVE INDEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1721

STEP NO--UR/0386/70/011/005/0244/0246

CIRC ACCESSION NO--AP0123528

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0123528

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE ARTICLE DESCRIBES A NEW METHOD FOR THE GENERATION OF GIANT PULSES IN A RUBY LASER WHICH DOES NOT INVOLVE THE INTRODUCTION OF ADDITIONAL MODULATING ELEMENTS INTO THE CAVITY. THE OSCILLATOR DESIGN WAS DESCRIBED IN AN EARLIER ARTICLE BY THE AUTHORS. A RUBY CRYSTAL WITH SAPPHIRE ENDOPIECES 7 MM IN DIAMETER AND 120 MM LONG (TOTAL CRYSTAL LENGTH 157 MM) WAS USED. EXCITATION WAS EFFECTED BY MEANS OF AN IFP-1200 FLASHLAMP. THE CAVITY CONSISTED OF A FULLY REFLECTING SPHERICAL MIRROR. THE GENERATION MODE OF THE LASER DEPENDS ESSENTIALLY ON THE LENGTH OF THE CAVITY. WITH LENGTH VALUES CORRESPONDING TO THE STABILITY REGION OF THE CAVITY ORDINARY FREE GENERATION TAKES PLACE, ACCOMPANIED BY SPIKES. AN INCREASE IN VALUES CORRESPONDING TO THE REGION OF CAVITY INSTABILITY CHANGES THE CHARACTER OF THE GENERATION, AND GIANT PULSE RADIATION IS OBSERVED ALONG WITH THE FREE GENERATION SPIKES. IT IS SUGGESTED THAT THE MECHANISM INVOLVED IN THE OBSERVED PHENOMENA IS DUE TO A CHANGE IN THE COURSE OF THE BEAMS IN THE CAVITY AS A RESULT OF CHANGES IN THE REFRACTIVE INDEX OF THE RUBY CROSS SECTION ACCORDING TO THE FIELD IN THE CAVITY. IT IS NOTED THAT THE PRINCIPLE OF GIANT PULSE GENERATION BEING CONSIDERED DOES NOT DEPEND ON THE RADIATION WAVELENGTH AND APPARENTLY CAN BE USED FOR NEODYMIUM GLASS AND OTHER ACTIVE MEDIA WHICH GENERATE IN THE IR RANGE.

FACILITY: MOSCOW SCIENTIFIC RESEARCH INSTITUTE OF INSTRUMENT BUILDING.

UNCLASSIFIED

USSR

MIKAELIAN, A. L., ~~KUPBISHOV~~, V. F., TURKOV, YU. G., ANDREYEV, YU. V.,
and SHCHERBAKOVA, A. A., Moscow Scientific Research Institute of In-
strument Building

"A New Method for the Generation of a Giant Pulse in Lasers"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki,
Vol 11, No 5, 5 Mar 70, pp 244-246

Abstract: The article describes a new method for the generation of
giant pulses in a ruby laser which does not involve the introduction
of additional modulating elements into the cavity. The oscillator de-
sign was described in an earlier article by the authors. A ruby crys-
tal with sapphire endpieces 7 mm in diameter and 120 mm long (total
crystal length 157 mm) was used. Excitation was effected by means of
an IFP-1200 flashlamp. The cavity consisted of a fully reflecting
spherical mirror. The generation mode of the laser depends essen-
tially on the length of the cavity. With length values corresponding
to the stability region of the cavity ordinary free generation takes

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USSR

MIKAELYAN, A. L., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 11, No 5, 5 Mar 70, pp 244-246

place, accompanied by spikes. An increase in values corresponding to the region of cavity instability changes the character of the generation, and giant pulse radiation is observed along with the free-generation spikes. It is suggested that the mechanism involved in the observed phenomena is due to a change in the course of the beams in the cavity as a result of changes in the refractive index of the ruby cross section according to the field in the cavity. It is noted that the principle of giant pulse generation being considered does not depend on the radiation wavelength and apparently can be used for neodymium glass and other active media which generate in the IR range.

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USSR

UDC 613.693



ZORILE, V. I., Maj Med Serv, Candidate of Medical Sciences, and KUPREYANOV, A. A.,
Col Med Serv

"The Effect of Prolonged Longitudinal Accelerations on Steering Efficiency"

Moscow, Voenno-Meditsinskiy Zhurnal, No 6, 1972, pp 89-94

Abstract: Prolonged longitudinal acceleration reduces the efficiency of steering by changing the trajectory of movements and lengthening the latent period and the reaction time of motor activity. These observations were made on young, healthy individuals who, while being centrifuged at 2 to 5 G, with acceleration ranging from 0.1-0.5 G/sec, for a total of 30-360 sec had to perform a standard task: by moving a lever (flexion and extension of the arm) they were to keep the pointer of an altimeter at the 0 mark while this pointer was being deflected according to a preset program and the error in adjustment was continuously being fed back to the experimental subject. The number, amplitude, and duration of mistakes were greater the greater the uniform G force, and reached maxima during acceleration. The ability to comprehend and execute special orders was similarly reduced. The most frequent cause of the mistakes was premature or excessive force applied to the control lever. The performance of the subjects under normal conditions gave no clue as to their ability to operate under changing gravitational force.

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USSR

UDC: 629.7.036.3.001.4

BIRYUKOV, A. L., KUPRIYANOV, A. V.

"Test Stand for Measurement of Thrust Components of a Reaction Engine"

USSR Author's Certificate No 366377, Filed 11/01/71, Published 23/03/73
(Translated from Referativnyy Zhurnal Aviatsionnyye i Raketnyye Dvigateli,
No 9, 1973, Abstract No 9.34.92P)

Translation: A test stand is patented for measurement of thrust components of a reaction engine, containing a horizontal platform for installation of the engine to be tested, lateral force measuring and moment measuring devices with lever-type force transmitting units, differing in that in order to eliminate lateral force from the measured torque, the lever power transmission system of the force meter for moment is connected to the end of a type-2 lever, and at distance $l_2 = l_1 L / Y_2$ from the end of this lever the lateral force meter is connected, where l_1 is the short arm of the lever, L is the distance from the axis of the test stand to the point of attachment of the moment force meter, Y_2 is the distance from the axis of the motor to the point of attachment of the lateral force meter. 2 Figures. Resume

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Rare Metals:

UDC 546.664'24:621.317.412

USSR

PECHENNIKOV, A. V., KUPRIYANOV, H. A., CHECHERNIKOV, V. I., ABRIKOSOV, N. KH.,
and ZINCHENKO, K. A., Moscow State University imeni M. V. Lomonosov, Institute
of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR

"Magnetic Properties of Dysprosium Tellurides"

Moscow, Neorganicheskiye Materialy, Vol 6, No 8, Aug 70, pp 1528-1529

Abstract: There is interest in a study of the magnetic properties of the r.e.m. Chalcogenides of the yttrium subgroup, most elements in which have a complex magnetic structure. The authors therefore studied compounds of dysprosium with tellurium: $DyTe$, Dy_3Te_4 , Dy_2Te_3 , Dy_4Te_7 , Dy_4Te_9 , and Dy_4Te_{11} . Measurement of the temperature dependence of magnetic susceptibility of dysprosium tellurides was performed using a pendulum balance in the 80-900°K temperature interval with a magnetic field intensity of about 10 koe. The investigations showed that the dependence of the inverse specific magnetic susceptibility on temperature is linear for all dysprosium tellurides. The results of the studies of the magnetic properties showed that these compounds have different electrical properties from metallic dysprosium and a significantly different nature of exchange interactions, indicating that the sf exchange interaction is significant in the formation of complex magnetic structures in the r.e.m.

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1/3 017 UNCLASSIFIED PROCESSING DATE--11SEP70
 TITLE--DISSOCIATION OF IONS IN N OCTANE, N HEXANE, BENZENE, AND FORMIC
 ACID -U-
 AUTHOR--KUPRIYANOV, S.YE. *K*
 COUNTRY OF INFO--USSR
 SOURCE--KHIM. VYS. ENERGI. 1970, 4(2) 108-13
 DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--DISSOCIATION, ION, OCTANE, HEXANE, BENZENE, FORMIC ACID, MASS SPECTROMETRY, NEON, EXCITATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1989/0149

STEP NO--UR/0456/70/004/002/0109/0113

CIRC ACCESSION NO--AP0106810

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106810

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DOUBLE MASS SPECTROMETER WAS USED. SPONTANEOUS DECAY OF THE METASTABLE IONS C SUB8 H SUB18 PRIME POSITIVE, C SUB6 H SUB13 PRIME POSITIVE, C SUB5 H SUB11 PRIME POSITIVE, C SUB4 H SUB9 PRIME POSITIVE, AND C SUB4 H SUB8 PRIME POSITIVE IN N-C SUB8 H SUB18, OF C SUB6 H SUB14 PRIME POSITIVE, C SUB5 H SUB11 PRIME POSITIVE, AND C SUB4 H SUB9 PRIME POSITIVE IN N-C SUB7 H SUB16, AS WELL AS OF MOL. IONS C SUB6 H SUB6 PRIME POSITIVE IN C SUB6 H SUB6 WAS STUDIED AT SMALLER THAN OR EQUAL TO 2 TIMES 10 PRIME NEGATIVE6 TORR IN THE IMPACT CHAMBER, WITHOUT INTRODUCING NE INTO IT. A BEAM OF POLYAT. IONS LEAVING THE ION SOURCE CONTAINS A LARGE SHARE OF IONS, THE EXCITATION ENERGY OF WHICH IS LARGE ENOUGH FOR SPONTANEOUS DECAY THROUGH VARIOUS CHANNELS IN LARGER THAN 10 PRIME NEGATIVE6 SEC AFTER THE IONIZATION. MORE EXCITED IONS DECAY IN THE ION SOURCE IN SMALLER THAN 10 PRIME NEGATIVE6 SEC AFTER THE IONIZATION AND FORM A USUAL MASS SPECTRUM. IONS CONTG. AN ODD NO. OF H ATOMS DECAY SPONTANEOUSLY WITH THE FORMATION OF IONS ALSO CONTG. AN ODD NO. OF H ATOMS AND OF A MOL., MOST OFTEN C SUB2 H SUB4, C SUB3 H SUB6, AND CH SUB4. THE PEAKS CORRESPONDING TO SPONTANEOUS DECAY OF METASTABLE IONS HAVE A CHARACTERISTIC TAILED FORM. IN STUDYING THE DISSOC. OF IONS IN AN IMPACT WITH NE ATOMS, THE FORMATION WAS OBSD. OF EXCITED IONS, WHICH DECAYED THROUGH ALL CHANNELS, INCLUDING A SPONTANEOUS DECAY. TO DET. THE DISSOC. CROSS SECTION OF IONS, THE DEPENDENCE WAS MEASURED OF THE RELATIVE INTENSITIES OF THE IONS FORMED ON THE NE PRESSURE UP TO 1.3 TIMES 10 PRIME NEGATIVE4 TORR.

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106810

ABSTRACT/EXTRACT--A STRAIGHT LINE WAS ALWAYS OBTAINED, THE INTERCEPT OF WHICH CORRESPONDED TO THE CONTRIBUTION OF THE SPONTANEOUS DECAY OF METASTABLE IONS TO THE OVERALL DISSOCN. REACTION; THE CROSS SECTIONS WERE CALCD. FROM THE SLOPES OF THE LINES. THE RESP. VALUES ARE GATHERED FOR THE DISSOCN. OF C SUBN H SUBM PRIME POSITIVE, THE PAIRS N,M BEING 8-18, 6-13, 5-11, 4-9, 4-8, AND 3-7 IN N-C SUBB H SUB18, 6-14, 5-11, 4-9, 4-8, 3-7, 3-6, 3-5, AND 3-3, IN N-C SUB7 H SUB16, AND 6,6 IN C SUB6 H SUB6. ONLY THY DISSOCN. OF HCOOH PRIME POSITIVE WAS STUDIED IN HCOOH. A HIGHER DISSOCN. CROSS SECTION CORRESPONDS USUALLY TO A MORE INTENSIVE SPONTANEOUS DECAY. MOL. IONS HAVE HIGHER CROSS SECTIONS OF DISSOCN. THAN RECOIL IONS. AN APPROX. DIRECT PROPORTIONALITY WAS OBSD. BETWEEN THE CROSS SECTIONS OF DISSOCN. OF MOL. IONS OF SATD. HYDROCARBONS WITH THE RUPTURE OF C,C BONDS AND THE NO. OF CH SUB2 GROUPS IN THE IONS. AT IONS ENERGIES OF 2,4 KEV, THERE IS A GENERAL SIMILARITY BETWEEN THE SPECTRA OF DISSOCN. AND THE ELECTRON IMPACT SPECTRA.

UNCLASSIFIED

USSR

UDC: 621.528:621.59

GORIN, V. P., SHUMSKIY, K. P., LEONOV, V. V., IVANOV, A. Ye., ZAKHAROV,
V. S., SIVUSHCHKOV, B. P., KUPRIYANOV, V. I., FODIONOV, A. Kh., BARANOV,
V. S., SHTRAKHMAN, A. Ya.

"A Cold Trap"

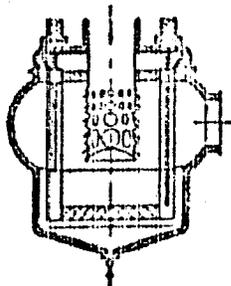
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 10, Apr 72, Author's Certificate No 332253, Division F, filed 9 Jan 69,
published 14 Mar 72, pp 136-137

Translation: This Author's Certificate introduces a cold trap for vacuum pumps. The device contains a thermally insulated housing with fittings for connecting it to the exhausting vacuum pump and to the space being evacuated. Located in the housing are optically opaque cryogenic panels cooled by a liquid coolant such as nitrogen. As a distinguishing feature of the patent, the effectiveness of the trap is improved by making the cooled panels in the form of a vertical annular louvred screen with cooling tubes on the faces and collectors for the upper and lower shields located in the cavities of the louvred screen. The screen and shields taken together form a closed nonhermetic chamber which accommodates a dis-

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IN, V. P. et al., USSR Author's Certificate No 332253

distributor pipe coaxial with the annular screen and passing through the upper shield. The lower end of the distributor pipe is closed off, and holes are made in the side wall which have a diameter increasing downward along the flow of the gas-vapor mixture. The flow channels between the louvres in the vertical screen increase in cross sectional area toward the periphery, and the upper and lower shields are made with a greater hydraulic drag than the vertical screen.



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USSR

FOMICHEV, V. A., KUPRIYANOV, V. N., Leningrad State University imeni A. A. Zhdanov

"Ultrasoft X-Ray Spectra of Germanium"

Leningrad, Fizika Tverdogo Tela, No 9, September 1970, pp 2639-2646

Abstract: The $M_{II, III}$ -spectra of germanium emission and absorption are obtained. Three maxima in the emission spectrum are detected and identified: two of them correspond to the $M_{III} M_{IV, \gamma}$ and $M_{II} M_{IV}$ transitions, while the third is assumed to be a satellite. On the basis of the first lines is evaluated the spin-doublet splitting of the M_{II} - and M_{III} -levels of Ge (3.6 eV). On the basis of the M_{III} absorption edge of germanium is evaluated the width of the M_{III} level (1.3 eV). Also obtained is the $M_{II, III}$ emission spectrum of Ge in GeO_2 : a considerable shift of the $M_{II, III}$ band into the high-energy direction is observed, together with an increase of its intensity in the transition from Ge to GeO_2 . The $M_{IV, \gamma}$ emission and absorption spectra of monocrystalline and amorphous germanium, lying within the wave length region of 350-800 Å were obtained. Together with the K and the $M_{II, III}$ spectra, these data are compared with the density curve of states $N(E)$. 3 tables, 6 figures, 21 bibliographic entries.

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USSR

UDC 597.0/5-15

PROTASOV, V. P., NEPROSHIN, A. YU., GUSAR, A. G., and KUPRIYANOV, V. S.,
Institute of Animal Evolutionary Morphology and Ecology, Ileni A. N. Severtsov,
Moscow, and Azov-Black Sea Scientific Research Institute of Marine Fisheries
and Oceanography, Kerch'

"Sounds Emitted by the Anchovy (*Engraulis encrasicolus* L.) in a Light Field"

Moscow, *Voprosy Ikhtiologii*, Vol 12, Vyp 2(73), 1972, pp 394-396

Abstract: Apparently fish within a light field emit sounds that attract other fish outside the light field. This reaction was tested in 17 experiments with anchovies on the Black Sea in March 1970 using television, underwater photography, sound recording, and oscillographic analysis. Before light was introduced the fish emitted rare high-frequency crackling sounds and a low-frequency persistent drumming that was attributed to other fish species. When a submerged lamp was switched on the fish congregated about it, emitting sounds of higher frequency at a significantly greater rate. These results were confirmed with those of laboratory tank experiments with *Leucaspis delineatus* Heck. When lights were turned on after 3 minutes of darkness the acoustic activity of the fish increased noticeably. These significant differences in acoustic activity in the absence and presence of light should be studied in their application to fish attraction methods.

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KUPRIYANOV, V. V.

ORGANIZATION OF THE MICROCIRCULATORY VASCULAR BED AND SOME ISSUES PERTAINING TO HEMODYNAMICS

Article by V. V. Kupriyanov, V. I. Kozlov (Moscow); Moscow, Vestnik Akademiya Meditsinskikh Nauk SSSR, Moscow, No 11, 1971, pp 54-97

The science about the structure of the terminal vasculature and composition of a section of morphology in which structural and functional aspects are intertwined. The architecture of the terminal vasculature bed and the structure of its different components are functionally labile, and the appearance of a vascular bed in life is extremely variable. In such conditions it is impossible to furnish an unequivocal adequate description of hemodynamic relationships formed in the terminal vascular bed. Of course, traditional morphological methods of investigation of fixed preparations permit description of the static picture of the phenomena observed. Yet the problem is to form an idea about circulation in a living organism.

The very earliest investigations in microangiology (Baird and Richardson, 1918; Dale, 1920; A. I. Kosterov, 1923, 1929; Krogh, 1923; E. K. Clark, 1923; Clark, 1932, 1939, and others) revealed that introrhombic distribution of blood is usually controlled independently of the general circulation by means of automatic regulation of the behavior of the components of the terminal vasculature. According to the conception of Krogh (1927) of a capillary motor mechanism of local circulation, the main role in hemodynamics is attributed to the contractility of capillaries which, as the author assumed, is related to the function of Rouget's cells. Although it was not subsequently confirmed that capillaries have their own contractile system (A. I. Kosterov, 1929; Clark et al., 1932, 1939; Chambers and Zveifach, 1940, 1944, 1946; T. A. Glikson, 1952, 1954), nevertheless the idea of Krogh's about the exceptional significance of capillaries in peripheral hemodynamics turned out to be very fruitful...

The introduction of vital microscopy methods to investigation of capillaries (Sanderson, 1928; Clark et al., 1930, 1931, 1939; Verchellier, 1932; Chambers and Zveifach, 1940, 1946; G. I. Khabdlishvili, 1957, 1958, 1961; Blyum, 1963, and others) played an important part in development of the teaching of blood circulation on the microscopic level. It was established that each element of the vascular pool plays a specific part in peripheral circulation.

KUPRIYANOV, V. V.

SPRS 5534
6 11 1971

UDC: 611.1.014.477-019

THE EFFECT OF G FORCES ON THE VASCOCIRCULATORY SYSTEM

Article by V.V. Kupriyanov, V.G. Puzhikhin, Chair of Normal Anatomy (headed by Professor V.V. Kupriyanov), corresponding member of the USSR Academy of Medical Sciences) of the 2nd Moscow "Order of Lenin" Medical Institute, Leninskii Prospekt, Leningrad, *Arkhiv Anatomii, Gistologii i Embriologii, Sovetskii*, No 11, 1971, submitted 12 February 1971, pp 17-30

In the flow of morphological literature of the last few years there is a persistent jet of numerous publications dealing with the effect of gravitational stress on the vascular systems of experimental animals. A series of investigations in our country began with the reports of V.S. Stepanov (1933, 1935) from the Laboratory of M.G. Prives. In these 13 years the disciples of M.G. Prives have published many articles. Almost all vascular regions are covered: arteries of muscles, skin, kidneys, spinal cord, brain, endocrine glands, joint capsules, nerve trunks, veins of the liver, spleen, lymphatic vessels of the extraxialities. Dozens of authors were involved in the investigations. The flow of information is growing continuously. A scrutiny of the published works convinces us that the facts obtained are rather consistent and constitute a, so to speak, orderly series of evidence of the validity of the positions upheld.

Until recently, the only view that had not been true was to use methods other than the injection method that would define and supplement some findings with regard to evaluating the condition of the vascular bed, with all its ensuring value for investigation of the topography and architecture of vessels. The injection method is therefore for demonstration of fine changes in the vascular system. For precise description of the condition of vessels, including the documentation illustrating the published works. On preparations and photographs, filled vessels are found to be separated from the substrate in which they exist during life. Efforts to detect the amount of adverse effect of the circulatory disorders on the surrounding tissue are completely ruled out, since such tissues are not visible and their condition is not recorded. Yet, it is precisely according to the state of functioning tissues of an organ that one can judge with a high degree of reliability

USSR

UGC: 681.3.055

KUPRIYANOV, Ye. M., SVIRIN, V. N.

"A Single-Cycle Reversible Shift Register"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Sovetskoye Ezaki,
No 32, 1970, Soviet Patent No 264038, Class 21, filed 13 Aug 69, pp 24-25

Abstract: This Author's Certificate introduces a single-cycle reversible shift register based on ferrotransistor elements. The device contains a memory cell. As a distinguishing feature of the patent, the speed, reliability, and resistance to interference are improved by using a delay cell with self-excitation where the input winding is connected to the output of the memory cell for the first digital place, while the output of this cell is connected, for instance, to the initial end of one of the input windings of the memory cell for the $n+1$ and $n-1$ digital places. The terminal ends of all the corresponding input coils of the memory cells are connected, for instance, through isolating diodes and keys to one of the supply lines.

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USSR

UDC 632.95

LUZHNOVA, M. I., EYTINGON, L. M., and KUPRIYANOVA, A. S.

"Effect of Meturin on Processes of Oxygen Liberation in Photosynthesis"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of Works), vyp 1, Moscow, 1970, pp 191-194 (from *Ezh-Khimiya*, No 11, Jun 72, Abstract No 11N447)

Translation: In experiments with chloroplasts isolated from young oat plants treated through the roots with meturin (I) (N-phenyl-N-hydroxy-N'-methylurea), the Hill reaction was inhibited. In this respect compound I was no different from monuron. In experiments with direct introduction of the herbicide into a mixture containing photolytically active chloroplasts from the leaves of peas, compound I and four other N-aryl-N-hydroxy-N'-methylureas, in contrast to phenuron and monuron, caused practically no inhibition of the Hill process. It is possible that I in plants is converted to compounds which inhibit photolytic activity of chloroplasts.

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USSR

UDC: 536.24:536.42

DANILOVA, G. N., BEL'SKIY, V. K., KUPRIYANOVA, A. V., BORISEVICHAYA, A. V.

"Motion-Picture Study of the Process of Boiling of Ammonia and Freon"

V sb. Teplo- i massopereenos. T. 2. Ch. 1 (Heat Transfer and Mass Transfer, Vol 2, Part 1--collection of works), Minsk, 1972, pp 132-140 (from FZh-Mekhanika, No 9, Sep 72, Abstract No 9B993)

Translation: Experiments were done with large-volume boiling on a horizontal stainless steel plate measuring 60 x 1.9 mm (in experiments with freon-12, -142, -113) and 62.5 x 2.6 mm (in experiments with ammonia). Heat fluxes were varied in the experiments from 2560 to 46300 W·m⁻², pressure from 0.59 to 12.2 abs. at. Motion pictures were taken at a rate of 3600-4700 frames per second. The quantitative effect of pressure on the detachment diameter D_{01} , the rate of detachment U , the product $D_{01}U$ and the rate of growth of the bubbles at the instant of detachment $W_0'' = (dD/dt)_{t=t_{max}}$ was determined. At atmospheric pressure, in view of the closeness of the characteristics of vaporization of freons, it is proposed that the values $D_{01} = 0.65$ mm and $U = 62$ Hz, $D_{01}U = 40$ mm/s should be assumed; for ammonia -- $D_{01} = 1.45$ mm. Computational expressions are proposed for

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USSR

DANILOVA, G. N., et al., Teplo- i massoperenos. T. 2. Ch. 1, Minsk, 1972, pp 132-140

these characteristics, which decrease in magnitude as pressure is increased. On the basis of the law of corresponding states, a generalization is also proposed for calculating the detachment diameter of vapor bubbles of water, freon-12 and ammonia. The rate of growth of vapor bubbles (W_0'') is satisfactorily described by the Labuntsov formula when $\beta = 6.75$ for ammonia and $\beta = 4.5 \pm 5$ for freon-12. Bibliography of 13 titles. Yu. Ye. Pokhvalov.

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- 70 -

USSR

UDC 546.65+549.544.6+547.466

MARTYNEKO, L. I., KUPRIYANOVA, G. N., and PRUTKOVA, N. H., Moscow State University imeni M. V. Lomonosov

"Nonionic Exchange Sorption of Monoiminodiacetates of Rare Earth Elements on a Cation Exchange Resin"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, No 1, Jan 72, pp 214-217

Abstract: Chemical and spectrographic analysis of the composition of eluates formed during passage of iminodiacetic acid [IMDA] through a cation exchange resin in the rare earth element form showed that separation of rare earth elements occurs at the expense of mono and diiminodiacetates. Adsorption of IMDA by the cation exchange resin in the process of the ion exchange separation is not due to cation exchange sorption but to the appearance of nonionic exchange forces. The input of such a sorption to the separation of rare earth elements may be considerable. Analysis of the mixtures of rare earth elements in the cation exchange resin phase in the equilibrium and in the elution solutions shows that the composition of the adsorbed complex differs from the composition of analogous mixtures in other phases. The adsorbed complex may participate actively in the process of the ionic exchange.

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USSR

UDC 911.3:616.9:576.895.771(47+57)

SHIPITSINA, N. K., ANUFRIYEVA, V. N., BANDIN, A. I., MINOGRADSKAYA, O. N.,
GORNOSTAYEVA, R. M., KUPRIYANOVA, Y. S., MARKOVICH, N. Ya., RASNITSYN, S. P.,
and TIMOFEYEVA, L. V.

"Study of the Biology of Blood-Sucking Diptera as Basis for Combating
Vectors of Infection and Blood-Sucking Insects in the Soviet Union"

V sb. Materialy Nauchn. konferentsii posvyashch. 50-letiyu In-ta Med.
parazitol. i tropich. Med. 1970 (Proceedings of the Scientific Conference
Devoted to the 50th Anniversary of the Institute of Medical Parasitology
and Tropical Medicine 1970 -- collection of works), Moscow, 1970, pp 45-49
(from RZh-Meditsinskaya Geografiya, No 2, Feb 71, Abstract No 2.36.43)

[No abstract]

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USSR

KUPRIYANOVICH, Leonid, Engineer

"Sleep on Command"

Kiev, Pravda Ukrainy, 3 Jan 73, p 4

Translation: A device which makes it possible to get rid of insomnia and to stabilize and optimize natural sleep has been invented in the Soviet Union. In sleep disturbance, man ordinarily expects aid from soporifics, which, although they help, have harmful side effects on the organism. The method of electrosleep is widely used in medical practice, but even it has disadvantages.

A new method, rhythmosleep, and all the necessary equipment was developed at one of the scientific research institutes of the Academy of Medical Science USSR.

The basic idea of the method is acceleration of the onset of sleep. One or two stimuli, for example sound and light, are sufficient for a patient to fall asleep. An intermittent sound signal resembling drops of water falling or flickering light cause fatigue, relax the muscles, and sleep occurs as a result. The rhythmosleep device supplies sound and light signals. The device itself (still experimental) is no larger than a telephone. A miniature loudspeaker emits sound, and two light filters, light.

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USSR

KUPRIYANOVICH, Pravda Ukrainy, 3 Jan 73, p 4

The parameters of the sound and light signals change during the course of an entire procedure in accordance with the condition of the patient, determined by such physiological indicators as brain and muscle biocurrents, eye movements, pulse and respiration rates. Upon deepening of sleep the amplitude of the brain biocurrents increases and their frequency diminishes gradually. The muscles are relaxed, their bioelectric activity drops, respiration and pulse become slower, eye movements are slowed down.

All changes in physiological indicators are registered, and the intensity of the sound and brightness of the light and also the frequency of the signals are automatically regulated according to the feedback principle.

Shades of color are also changes gradually in accordance with the patient's condition: from light blue and violet to dark green.

Rhythmosleep has on man that effect which at a given moment best facilitates the gentle physiological sinking into sleep.

The device can also operate without feedback. Its action is programmed earlier to correspond to the depth of sleep during the natural process of falling asleep. In this case the action of Rhythmosleep over the course of the entire procedure will be the most "gentle" and physiological only when the correct set of initial values is used, in particular the
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USSR

KUPRIYANOVICH, Pravda Ukrainy, 3 Jan 73, p 4

frequency of the intermittent sound and light signals. It has been established experimentally that for each person this initial frequency remains practically unchanged. Its variance for different people is not large, and does not exceed an average of 5%. It is important to determine the optimum frequency. The time required for falling asleep will increase with even a small deviation from this frequency. Sleep will generally not be produced with incorrect selection of initial frequency.

The rhythmicity of the action of the device for a person is adapted to the rhythm of his metabolism. Moreover, prolonged action makes it possible to reconstruct the rhythms of the organism, normalizing them. This is why treatments lasting many days make possible an improvement of nighttime sleep. A person suffering from insomnia can improve nighttime sleep using the device not only at night but in the daytime.

As research at Kishinevskaya Republic Hospital has shown, rhythm-sleep is suitable for treating such diseases as hypertension, different kinds of neuroses, ulcers, and stuttering. It is also a useful device for healthy people; it soothes, reduces fatigue.

The device has been used on athletes. Anatoliy Alekseyev, sports physician and psychoneurologist at the All-Union Scientific Research Institute of Physical Culture, uses rhythm-sleep during the period between
3/4

USSR

KUPRIYANOVICH, Pravda Ukrainy, 3 Jan 73, p 4

training, when athletes must relax and rest to the maximum. The main advantage of rhythmosleep is its absolute harmlessness. One of the Moscow plants has begun production of an experimental batch of miniature devices based on so-called integrated circuits, which makes it possible to reduce the size of the device ten-fold in comparison with transistorized circuits.

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USSR

UDC 616.932-08-036.8:612.013.1

NIKIFOROV, V. N., POKROVSKIY, V. I., BULYCHEV, V. V., MALEYEV, V. V.,
KUPRIYCHUK, A. B., KUCHEROVA, T. P., BALASHEV, V. I., KOL'TAROVA, T. A.,
and VEYUR, N. A., Scientific Research Institute of Epidemiology, Ministry
of Health USSR

"Restoration of Homeostasis in Cholera Patients Receiving Rehydration Therapy"

Moscow, Sovetskaya Meditsina, No 9, 1971, pp 114-120

Abstract: Normalization of disturbances of homeostasis in cholera patients is achieved by careful monitoring of the effects of rehydration therapy. Various indices of homeostasis -- physicochemical properties of the blood, acid-base equilibrium of arterial and venous blood, clotting, etc. -- were investigated in 58 patients with Asiatic cholera before and during rehydration with the standard No 1 solution (5 g NaCl, 4 g NaHCO₃, and 1 g KCl per liter of pyrogenic water). The disturbance of homeostasis before treatment was marked by increased specific gravity of plasma, viscosity, and hematocrit; and decreased volume of circulating plasma. Changes in the acid-base equilibrium and blood gases were manifested by signs of compensated respiratory alkalosis, metabolic compensated acidosis, and stagnant hypoxemia. Disruption of the movement of blood electrolytes was accompanied by decreased concentration of potassium,
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USSR

NIKIFOROV, V. N., et al., Sovetskaya Meditsina, No 9, 1971, pp 114-120
sodium, and chlorine. Fibrinolysis, clotting, recalcification, and heparin
time increased while the prothrombin index and fibrinogen increased.

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USSR

UDC 539.374

KUPRIYCHUK, P. F., SHABLIY, O. N., Ternopol'

"Study of Carrying Capacity of Smooth Envelopes of Rotation of Variable Thickness"

Problemy Prochnosti, No 10, 1971, pp 38-44.

Abstract: The carrying capacity of gently sloped shells of rotation of variable thickness is studied, as well as the savings of material depending on the parameters of the geometry of the shell and the methods of fastening it at the contour. It is determined that in designing shells, optimal selection of its geometric parameters can result in significant savings of materials.

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UNCLASSIFIED

PROCESSING DATE--03 JUL 70

TITLE--DETERMINATION OF THE CARRYING CAPACITY OF SHALLOW SHELLS OF
REVOLUTION -U-

AUTHOR--KUPRIYCHUK, P.F., SHAELIY, C.A.

K

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18

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAYA MEKHANIKA VOL. 6, JAN. 1970, P. 34-42

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--THICKNESS, MECHANICAL ENGINEERING, SHELL DEFORMATION, SHELL
STRUCTURE STABILITY, STRESS LOAD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1978/1246

STEP NO--UR/C198/70/0067000/C034/C042

CITE ACCESSION NO--AP0046169

Acc. Nr:

AP0046169

Abstracting Service: 5/70
INTERNAT. AEROSPACE ABST.

Ref. Code:

UR0198

A70-23288 " Determination of the carrying capacity of shallow shells of revolution (Opredelenie nesushchei sposobnosti plogikh obolochek vrashcheniia). P. F. Kupriichuk and O. N. Shabluii (L'vovskii Politekhnikeskii Institut, Ternopol, Ukrainian SSR). *Prikladnaia Mekhanika*, vol. 6, Jan. 1970, p. 34-42. 10 refs. In Russian.

Application of the engineering theory of plastic shells to the determination of the buckling stress of clamped shells of constant and variable thickness under transverse loading. It is assumed that the strains and displacements are small, that the shell material is rigid-plastic, that the Tresca yield condition is valid, and that the limiting state of the shell is characterized by the development of plastic strains in the entire volume of the shell prior to buckling. The limiting equilibrium of a shallow clamped spherical shell of linearly varying thickness subjected to a transverse load is determined as an example.

V.P.

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ALS

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19781246

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UDC 577.472.614+577.391

USSR

GUS'KOVA, V. N., BRAGINA, A. N., ZASEDATELEV, A. A., IL'IN, B. N., SUPRIYANOVA,
V. M., MASHNEVA, N. I., RODIONOVA, L. F., SUKAL'SKAYA, S. Ya., and TIKHONOVA,
A. I., Leningrad Scientific Research Institute of Radiation Hygiene, Ministry
of Health RSFSR

"Effect of a Mixture of Uranium Fission Products on Sanitary Conditions and
Hydrobionts in Weakly Mineralized Bodies of Fresh Water"

Kiev, Gidrobiologicheskij Zhurnal, Vol 6, No 4, Jul/Aug 70, pp 5-11

Abstract: Pollution of water with two mixtures of radionuclides (mixture I,
52% rare earth radioisotopes and 20% alkali earth elements; mixture II, 40%
rare earth radioisotopes and approximately 34% zirconium 95 and niobium 95)
at concentrations ranging from $2.0 \cdot 10^{-7}$ to $1.0 \cdot 10^{-5}$ curie/liter was studied.
The substances did not affect the sanitary conditions or the hydrobionts
studied (E. coli, protococcal algae, Infusoria, duckweed). Biochemical oxy-
gen demand and development of saprophytic mycoflora were inhibited only at
concentrations above $1.0 \cdot 10^{-3}$ curie/liter. The rate of accumulation decreased
from the lowest link (microorganisms) to the highest (fish). Adverse effects
of the radioisotopes on developing fish spawn varied with the stage of
1/2

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USSR

GUS'KOVA, V. N., et al, *Gidrobiologicheskii Zhurnal*, Vol 6, No 4, Jul/Aug 70, pp 5-11

development. Effects were evident in the early stages of embryogenesis at a concentration of $1 \cdot 10^{-5}$ curie/liter and in later stages at $1.0 \cdot 10^{-3}$ curie/liter.

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USSR

UDC: 621.317.799(088.8)

KUPROVICH, V. P., PARKHOMENKO, P. P., KUZNETSOV, V. M., MREENKOV, A. D.,
TOMPEL'D, D. L., Scientific Research Institute of Machine Building Technology,
Institute of Automation and Remote Control (Technical Cybernetics)

"A Device for Automatic Quantitative and Qualitative Monitoring of Electrical and Time Parameters"

USSR Author's Certificate No 264794, filed 27 Dec 67, published 2 Jul 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A327 P)

Translation: A device is proposed for automatic quantitative and qualitative monitoring of electrical and time parameters. As a distinguishing feature of the patent, in order to reduce time and increase accuracy in localizing trouble spots in cable conductors, the device contains a trouble localizing unit in which the control input of the shift register is connected to the output of the data processing module, while the signal and control outputs of the shift register are connected to the control inputs of the block of output devices and the commutation module respectively. The control inputs of the switches of each of the cells of the high-voltage commutation circuits are connected to the outputs of a two-position storage element whose input is connected to the output of the commutation module through the commutation leads of one of the switches.

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Optics & Spectroscopy

USSR

AGEYEV, V. A., GAVRILYUK, V. I., KUPRYASHKIN, V. T., LATYSHEV, G. D., LYUTYY, I. N., MAYDANYUK, V. K., MAKOVETSKIY, Yu. V., and POKTISTOV, A. I., Institute of Physics of the Academy of Sciences UkrSSR

"Study of Conversion Electron Spectrum of Nb⁹⁶"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 8, Aug 70, pp 1614-1617

Abstract: Individual segments of the conversion electron spectrum of Nb⁹⁶ associated with the doublet structure of transitions found by Honaro and others are also possible according to the decay scheme of Nb⁹⁶ are studied. The measurements were made on the magnetic β -spectrometer of the type π^2 of the Institute of Physics of the Academy of Sciences UkrSSR. The measurements showed K-line doublets of transitions in the regions 350, 720, and 810 keV and K241.3 is apparently a single line. The results of the measurements are given in a table. The energy of all transitions observed was determined with an error of ± 0.3 keV. The K-lines of the transitions 350.1 and 352.1 keV were weak and therefore only an estimate of their intensity is given. For all transitions observed, α_K were determined with respect

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USSR

AGEYEV, V. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 8, Aug 70, pp 1614-1617

to the ratios of the intensities of the conversion lines to the intensities of γ -rays. The values of α_K for the transitions 350.1 and 352.1 were estimated. All transitions correspond to multipolarities M1 or E2. The exception was $\gamma_{812.4}$, for which the internal conversion ratio was less than that established from Tc^{96} decay. The ground states are evaluated on the basis of the shell model.

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Acc. Nr: **AP0055525** - Abstracting Service:
CHEMICAL ABST. 57c

Ref. Code:
ULS0000

KUPRIEVICH V.A.

93462b Full configuration interaction for the benzyl radical.
Kuprievich, V. A.; Kruglyak, Yu. A.; Mozdor, E. V. (Div.
Theor. Chem. Struct. Reactiv., L. V. Pisarzhevskii Inst. Phys.
Chem., Kiev, USSR). *Int. J. Quantum Chem.* 1970, 3(1), 3-17

(Eng). The electronic structure of the benzyl radical in its ground state has been computed by using a model Hamiltonian due to Pariser-Parr with full configuration interaction as well as with different truncated configurational sets built on SCF open-shell orbitals. The correlation energy corresponding to this model was equal to -0.929722 eV. With the singly excited configurations only 18% of this energy is taken into account. By extending the basis to include the doubly excited configurations, one can account for 44% of the correlation energy. An anal. of the accuracy of the proton hyperfine splitting calcn. caused by inaccurate computation of the wave function is given. If only singly and even doubly excited configurations are taken into account, one cannot hope to obtain splittings with an accuracy of more than 0.5 G. Inclusion of triply excited configurations lowers this error by one order. In addn., the use of the simple McConnell relation may lead to an error in splitting calcns. of no less than 1.5 G. RCMS

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REEL/FRA
19840823

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1/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--COMPLETE CONFIGURATION INTERACTION FOR BENZYL RADICAL -U-
AUTHOR-(03)-KURGLYAK, YU.A., MOZDOR, YE.V., KUPRIYEVICH, V.A.
COUNTRY OF INFO--USSR
SOURCE--UKRAINSKIY FIZICHESKIY ZHURNAL, 1970, VOL 15, NR 1, PP 48-58
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, CHEMISTRY
TOPIC TAGS--ELECTRON STRUCTURE, FREE RADICAL, GROUND STATE, PROTON

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1216 STEP NO--UR/0185/70/015/001/0048/0058
CIRC ACCESSION NO--AP0116681
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116681

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRONIC STRUCTURE OF BENZYL RADICAL IN ITS GROUND STATE WAS COMPUTED ON A MODEL HAMILTONIAN DUE TO PARISER-PARR WITH REGARD FOR A COMPLETE CONFIGURATION INTERACTION AS WELL AS WITH DIFFERENT LIMITED CONFIGURATIONAL SETS BUILT ON SCF OPEN SHELL ORBITALS. CORRELATION ENERGY CORRESPONDING TO THIS MODEL WAS FOUND TO BE EQUAL TO 0.929722 EV. WITH THE SINGLY EXCITED CONFIGURATIONS ONLY 18PERCENT OF THIS ENERGY ARE TAKEN INTO ACCOUNT. EXTENSION OF THE BASIS DUE TO DOUBLY EXCITED CONFIGURATIONS LEADS TO AN ACCOUNT OF 94PERCENT OF CORRELATION ENERGY. ANALYSIS OF ACCURACY OF THE PROTON HYPERFINE SPLITTING CALCULATION CAUSED BY UNACCURATE COMPUTATION OF THE WAVE FUNCTION IS GIVEN. IF ONLY SINGLY AND EVEN DOUBLY EXCITED CONFIGURATIONS ARE TAKEN INTO ACCOUNT, THEN ONE CANNOT HOPE TO OBTAIN SPLITTINGS WITH AN ACCURACY OF MORE THAN 0.5 G. INCLUSION OF TRIPLY EXCITED CONFIGURATIONS PERMITS THIS ERROR TO BE LOWERED BY ONE ORDER. IN ADDITION, THE USE OF THE SIMPLE MCCONNELL RELATION MAY LEAD TO AN ERROR IN SPLITTING CALCULATION OF NOT LESS THAN 1.5 G. FACILITY: INSTITUT FIZICHESKOY KHIMII AN USSR, KIEV.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--2306170
 TITLE--ELECTRONIC STRUCTURE OF THE BENZYL RADICAL TAKING INTO ACCOUNT THE
 TOTAL CONFIGURATION INTERACTION -U-
 AUTHOR-(03)-KRUGLYAK, YU.A., MOZDOR, E.V., KUPRIEVICH, V.A.
 COUNTRY OF INFO--USSR
 SOURCE--DOKL. BOLG. AKAD. NAUK 1970, 23(1), 89-92
 DATE PUBLISHED-----70
 SUBJECT AREAS--CHEMISTRY
 TOPIC TAGS--ELECTRON STRUCTURE, BENZENE DERIVATIVE, FREE RADICAL, GROUND
 STATE, CALCULATION
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1997/1126 STEP NO--BU/0011/70/023/001/0039/0002
 CIRC ACCESSION NO--AT0119980
 UNCLASSIFIED

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272 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0119980

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE CALC. WAS CARRIED OUT BY TAKING INTO ACCOUNT THE GROUND AND 403 EXCITED EXCITED CONFIGURATIONS OF BENZYL RADICAL (I) BY USING THE PARISER-PARK HAMILTONIAN AND ASSUMING THE RESONANCE INTEGRAL EQUALS 2.274 EV, C-C BOND LENGTH EQUALS 1.4 ANGSTROM, AND ALL BOND ANGLES EQUAL 120DEGREES. BOND ORDERS AND ELEMENTS OF THE SPIN D. MATRIX ARE GIVEN FOR THE GROUND STATE OF I. THE RESULTS DO NOT CONFIRM THE GENERAL VIEW THAT IT IS SUFFICIENT TO CONSIDER EXCITED CONFIGURATIONS ONLY ONCE IN THE CALC. OF THE ELECTRON STRUCTURE OF RADICALS. FACILITY: INST. FIZ. KHIM. IM. PISARZHEVSKOGO, KIEV, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--13NOV70
 TITLE--ELECTRONIC ASPECTS OF THE PHOTODIMERIZATION OF PYRIMIDINE BASES AND
 THEIR DERIVATIVES -U-
 AUTHOR-(04)-KRUGLYAK, YU.A., DANILOV, V.I., KUPRIYEVICH, V.A., OGLOBLIN,
 V.V.
 COUNTRY OF INFO--USSR
 SOURCE--TEUR. EKSP. 1970, 5(1), 33-9
 DATE PUBLISHED-----70
 SUBJECT AREAS--CHEMISTRY, PHYSICS, BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--DIMERIZATION, PYRIMIDINE, EXCITED STATE, URACIL, THYMINE,
 PHOTOEFFECT, FREE RADICAL, DNA
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3002/1114 STEP NO--UR/0379/70/006/001/0033/0037
 CIRC ACCESSION NO--A70124541

UNCLASSIFIED

PROCESSING DATE--11NOV70

2/2 025

CIRC ACCESSION NO--AP0123541
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. CALCNS. WERE MADE ON THE LOWEST

EXCITED TRIPLET (T SUB1) AND SINGLET (S SUB1) STATES OF THE TITLE
COMPS. (URACIL, 6, METHYLURACIL, THYMINE, URATIC ACID, 5,4-THIOURACIL,
CYTESINE, 5, METHYLCYTOSINE, 2, THIOCYTHIMINE, ISOCYTOSINE, 5, NITROURACIL,
AND 6, AZATHYMINE) BY SCF CI (CONFIGURATION INTERACTION) METHODS.
EXCITATION ESP. CONCERNS THE C SUB5 C SUB6 BOND IN T SUB1 AND S SUB1
STATES, TRIPLET EXCITATION BEING ENTIRELY LOCALIZED ON THIS BOND. IN
THE T SUB1 STATE, THIS BOND IS VERY WEAKENED AND, THUS, THE CONDITIONS
FOR DIMERIZATION ARE MORE FAVORABLE IN THE T SUB1 THAN IN THE S SUB1
STATE. A CORRELATION IS PROPOSED BETWEEN THE DEGREE OF LOCALIZATION OF
TRIPLET EXCITATION OF C SUB5 C SUB6 BOND AND THE EASE OF
PHOTODIMERIZATION. EXPTL. DATA CONCERNING FORMATION OF THYMINE FREE
RADICALS IN DNA ARE EXPLAINED. FACILITY: INST. FIZ. KHIM. IM.
PISARZHEVSKOGO, KIEV, USSR.

UNCLASSIFIED

USSR

VASIL'KOVSKIY, V. A., KOVTUN, N. M., KUPROYANOV, A. K., NIKITIN, S. A., and OSTROVSKIY, V. F.

"Study of Nuclear Magnetic Resonance in $Gd_x Y_{1-x} Fe_2$ Compounds"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 65, No 2 (8), 1973, pp 693-697

Abstract : The nuclear magnetic resonance spectra were measured on gadolinium and yttrium nuclei in $Gd_x Y_{1-x} Fe_2$ compounds at a temperature of $77^{\circ} K$. The contributions to the hyperfine fields in the gadolinium and yttrium nuclei on the part of the nearest neighbors of the gadolinium atom sublattice were evaluated. The primary contribution to the hyperfine fields in yttrium and gadolinium is made by the iron atom sublattice. The variation of the position of the center of gravity of the nuclear magnetic resonance spectra of gadolinium and yttrium as a function of the atom concentration of gadolinium and the variation with temperature, of the nuclear magnetic resonance of Gd^{155} in $GdFe_2$ and Y^{89} in YFe_2 are plotted. A table is presented for the probability of replacement of the nearest Gd atoms by a Y atom and the experimental procedure for obtaining and recording the

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USSR

VASIL'KOVSKIY, V. A., et al., Zhurnal Eksperimental'noy i Teoreticheskoy fiziki, Vol 65, No 2 (8), 1973, pp 693-697

nuclear resonance spectra is described in detail. The dependence on composition and temperature of the nuclear magnetic resonance of Gd^{155} , Gd^{157} , and Y^{89} is determined both by the iron and gadolinium sublattices.

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UDC: 539.163.546.662

USSR

GAVRILYUK, V. I., GROMOV, K. YA., KLYUCHNIKOV, A. A., KUPIYASHKIN, V. T., LATYSHEV, G. D., MAKOVETSKIY, YU. V., and FEOKTISTOV, A. I.

"Studying the Internal Conversion Electron Spectrum of ^{146}Gd "

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 37, No 9, 1973, pp 1839-1845

Abstract: The authors study the individual sections of the internal conversion electron spectrum of ^{146}Gd with the aid of a $\sqrt{2}$ magnetic beta-spectrometer with high discrimination. This involved three problems: 1. More accurate measurement of conversion line intensity on the L-subshells of atoms for gamma-114.67, gamma-115.52, and gamma-154.58 than has been done previously in order to determine more precisely the E2-component admixture in these M1-transitions. 2. Study the possible direct transitions K260.19, $2^- \rightarrow 4^-$ and K269.28, $1^- \rightarrow 3^-$ according to the decay scheme. 3. Detect the K421 and K576 transitions. The results show that the calculated spectrum was more compressed than the experimental. Further study of the levels of ^{146}Eu will show what is the real order of the levels.

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- 84 -

USSR

UDC 539.121.72/75

VISHNEVSKIY, I. N., GAVRILYUK, V. I., KUPRYASHENKO, M. T.,
LATYSHEV, G. D., MAKOVETSKIY, YU. V., and KHALOV, V. G., In-
stitute of Nuclear Research Academy of Sciences, Uk-
rainian SSR

"Annihilation of Positrons in Copper and Brass Subjected to
Different Heat Treatments"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 18, No 10, October
1973, pp 1599-1604

Abstract: Using a high-resolution magnetic spectrometer, the
authors find the distributions of the annihilation quanta by
energy $\rho(E)$ and the distribution of electrons by impulses n
(p_z) in samples of copper and brass subjected to different
heat treatments. They find that for the annealed samples of
copper and brass, broader distributions are produced for $\rho(E)$
and $n(p_z)$ than for the quenched ones. This effect may be

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USSR

VISHNEVSKIY, I. N., et al., Ukrainskiy Fizicheskiy Zhurnal, Vol 18, No 10,
Oct 73, pp 1599-1604

used for studying the influence of the technological procedure of producing the samples on their properties. After defining the problem in the introduction, the authors give a detailed account of the method used in the investigation, after which they analyze the results. The article contains 8 figures and 6 bibliographic references.

2/2

- 86 -

1/2 019 UNCLASSIFIED PROCESSING DATE--02OCT70
 TITLE--A SUMMARY OF THE RESULTS OF SURGICAL TREATMENT OF THE CARDIAC AND
 MAJOR VESSELS IN THE CAUCASUS MINERAL WATERS -U-
 AUTHOR--(05)--TOSHINSKIY, I.I., BOGDYEV, D.N., KUPISOV, M.N., FISKOVA,
 R.Z., ABANICHEV, N.I.
 COUNTRY OF INFO--USSR
 SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 3, PP
 25-32
 DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--SURGERY, CIRCULATORY SYSTEM, HEART, BLOOD VESSEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FREAME--1986/9351

STEP NO--UR/0509/70/104/003/0025/0012

CIRC ACCESSION NO--AP0102812

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--02JCT70

CIRC ACCESSION NO--AP0102812

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS PRESENT THE ANALYSIS OF THEIR EXPERIENCE WITH 984 OPERATIVE PROCEDURES PERFORMED ON THE HEART AND LARGE VESSELS IN THE HOSPITAL OF THE PYATOGORK CITY.

89

UNCLASSIFIED

1/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--TANGENTIAL DEFORMATION AND SKIDDING OF A PNEUMATIC TIRE -U-

AUTHOR--KUPTSOV, V.M.

K

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, AVTOMOBIL'NAYA PROMYSHLENNOST', NO 2, 1970, PP26-28

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--MOTOR VEHICLE TIRE, MATERIAL DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1216

STEP NO--UR/0113/70/000/002/0026/0028

CIRC ACCESSION NO--APO123180

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123180

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE AUTHOR CONSIDERS PROBLEMS ASSOCIATED WITH THE THEORETICAL AND EXPERIMENTAL STUDY OF THE KINETICS OF MOTION OF A PNEUMATIC TIRE DURING ITS ROLLING ALONG A SOLID SUPPORT SURFACE. RELATIONSHIPS ARE DETERMINED WHICH CHARACTERIZE THE TANGENTIAL DEFORMATION OF A TIRE, SHIFTING OF THE TIRE PROTECTOR RACING TRACK WITH RESPECT TO THE RIM, AND ITS SKIDDING WITH RESPECT TO THE SUPPORT SURFACE. ORIGINAL ARTICLE: FOUR FIGURES AND TWO BIBLIOGRAPHIC ENTRIES.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--POSSIBILITY OF ASSESSING THE EFFECT OF A PLASTICIZER ON THE
AUTOHESION OF ELASTOMERS FROM THE FLORY HUGGINS CONSTANT VALUE -U-
AUTHOR-(02)-KUPTSOV, YU.D., MALOSHUK, YU.S.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 388-390

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PLASTICIZER, ADHESION, ELASTOMER, SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1592

STEP NO--UR/0069/70/032/003/0388/0390

CIRC ACCESSION NO--APO125214

UNCLASSIFIED

2/2 015
CIRC ACCESSION NO--AP0125214

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AS EXEMPLIFIED BY ELASTOMER SYSTEMS BASED ON SYNTHETIC RUBBERS, THE AUTOHESION OF A PLASTICISED SYSTEM HAS BEEN SHOWN TO BE INVERSELY PROPORTIONAL TO THE VALUE OF THE FLORY HUGGINS CONSTANT (CHI). OWING TO THIS FACT, IT IS POSSIBLE IN ASSESSING THE EFFECT OF A PLASTICIZER ON THE AUTOHESIVE PROPERTIES OF ELASTOMERS TO MAKE USE OF THE GRAPHICAL DEPENDENCE OF AUTOHESION ON THE CONSTANT CHI. FACILITY: INSTITUT TUNKOY KHIMICHESKOY TEKHNologii IM. M. V. LOMONOSOVA MOSCOW.

UNCLASSIFIED

Polymers and Polymerization

USSR

UDC 678.049:539.612

KUPTSOV, YU. D., and MALOSHUK, YU. S., Moscow Institute of Fine
Chemical Technology imeni M. V. Lomonosov, Moscow, Ministry of
Higher and Secondary Specialized Education RSFSR

"Evaluation of the Effect of a Plasticizer on the Autoadhesion of
Elastomers on the Basis of Values of the Flory-Huggins Constant"

Moscow, Kolloidnyy Zhurnal, Vol 32, No 3, May-Jun 70, pp 388-390

Abstract: The autoadhesion strength of elastomers of three chemi-
cally different types (SKN-26, SKS 30-1, and SKS-25KVP5ARK) con-
taining plasticizers of different chemical composition in amounts
not exceeding the limit of compatibility with the elastomer was
determined and correlated with values of the Flory-Huggins constant
characterizing the interaction between the elastomer and plasticizer.
The autoadhesion varied in inverse proportion to the F.-H. constant.
On the basis of the relation established, the effect of a plasti-
cizer on the autoadhesion strength of an elastomer can be evaluated
graphically by using a straight-line plot showing the dependence

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KUPTSOV, YU. D., et al, Kolloidnyy Zhurnal, Vol 32, No 3, May-Jun 70,
pp 388-390

between autoadhesion strength and the values of F.-H. constants for
the elastomer in question containing other plasticizers. The
authors thank S. S. VOYUTSKIY for taking part in the research.

2/2

- 91 -

172 009 UNCLASSIFIED PROCESSING DATE--Q4DEC70
ITL#--HYDRATED MERCURY AND CADMIUM FLUORIDES -U-

AUTHOR--(05)-POLISHCHUK, S.A., KHMELEVA, M.G., ZADNEPROVSKIY, G.M.,
KATDALOVA, T.A., KUPTSOVA, N.V.
COUNTRY OF INFO--USSR

SOURCE--J. LESS-COMMON METALS 1970, 21(1), 63-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MERCURY COMPOUND, CADMIUM COMPOUND, FLUORIDE,
THERMOGRAVIMETRIC ANALYSIS, HYDRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0939

STEP NO--NE/0000/70/021/001/0003/0069

ARC ACCESSION NO--AP0133025

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--040ECT0

IRC ACCESSION NO--AP0133025

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY. RELATIONS IN THE H₂O-HF-H
SUB₂ O SYSTEM WERE INVESTIGATED AT 25DEGREES IN THE 5-75PERCENT HF
CONCN. RANGE. THE COMPN OF THE SOLID PHASES FORMED WAS ESTABLISHED BY
THE USE OF SCHREINEMAKER'S METHOD. TWO COMPOS. WERE ISOLATED: HGF
SUB₂ .2H SUB₂ O, AND ITS HYDROLYSIS PRODUCT, H₂OHF. IN THE CDHF-H SUB₂
O SYSTEM, CDF SUB₂ .2H SUB₂ O WAS ISOLATED AT SMALLER THAN OR EQUAL TO
10PERCENT HF CONCN. ONLY. THE COMPOS. OBTAINED WERE INVESTIGATED BY
SEVERAL PHYSICOCHEM. METHODS. THERMOGRAVIMETRIC ANAL. SHOWED A LOW
THERMAL STABILITY OF HGF SUB₂ .2H SUB₂ O AND CDF SUB₂ .2H SUB₂ O. THEIR
SPECTRA INDICATED THE PRESENCE OF STRONG H BONDS IN THESE HYDRATES. BY
THE USE OF X RAY POWDER TECHNIQUES, THE 2 HYDRATES WERE SHOWN TO BE
ISOTYPICAL AND PRESUMABLY, ISOSTRUCTURAL. THEY ARE ORTHORHOMBIC, WITH
SPACE GROUPS PNMN OR PNM2 SUB2, AND 8 FORMULA UNITS PER UNIT CELL, WITH
CELL PARAMETERS: A 9.931 PLUS OR MINUS 0.003, B 7.078 PLUS OR MINUS
0.002, C 8.767 PLUS OR MINUS 0.003 ANGSTROM FOR CDF SUB₂ .2H SUB₂ O AND
A 10.002 PLUS OR MINUS 0.002, B 7.151 PLUS OR MINUS 0.001, C 8.891 PLUS
OR MINUS 0.001 ANGSTROM FOR HGF SUB₂ .2H SUB₂ O.

UNCLASSIFIED

USSR

UDC: 532.516

KUPTSOVA, V. S.

"The Mathematical Analogy between Bending of a Plate and Circulation Motion of Fluid in a Geometrically Similar Area"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, No 11, 1972, pp 72-76.

Abstract: The problem of determination of the flow picture and distribution of temperature in a liquid partially filling a cylindrical vessel is solved with second order thermal boundary conditions at the side wall of the vessel. The problem is solved under conditions of weak, natural convection on the basis of the mathematical analogy between bending of a flat plate under the influence of a distributed transverse load and the circulation motion of a liquid in a geometrically similar area. The problem is solved by the method of B. G. Galerkin. It is demonstrated that the approximate analytic solution for the quasistable mode agrees satisfactorily with the numerical solution.

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USSR

UDC 539.4.43

KUP'VASIRYY, P. E., Kiev

"Influence of Loading Frequency and Directed Anisotropy on Fatigue Strength of Sheet AMg6BM Aluminum Alloy"

Kiev, Problemy Prochnosti, No 6, 1972, pp 38-42.

Abstract: The influence of loading frequency and directed anisotropy on fatigue limit of AMg6BM aluminum alloy in sheets 3 mm thick was studied. The fatigue tests were performed on cantilever-mounted flat specimens, in which the second form of transverse oscillations was excited at 600, 2,000, 2,500, 3,800, 7,500 and 12,500 Hz. It was found that as the loading frequency increased, the fatigue limit first increased (up to 7,500 Hz), then decreased; directed anisotropy has practically no influence on fatigue strength. The passage of the strength curve as a function of frequency through its maximum is not related to microstructural changes in the nature of fatigue rupture; the specimens always rupture primarily along grain boundaries. The influence of directed anisotropy on fatigue limit decreases from 3.5% at 600 Hz to 1% at 12,500 Hz.

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Acc. Nr.

AP0055643

Abstracting Service:
CHEMICAL ABST.

6-70

Ref. Code
UR 0460

112174c Differential thermal analysis study of phenol-formaldehyde novolaks hardening with hexamethylenetetramine. Kurachenkov, V. I.; Petrakov, V. M.; Ignatov, L. A. Nauch. Issled. Inst. Plast. Mass., Moscow, USSR. ~~Vysokomol. Soedin. Ser. B~~ 1970, 12(2), 127-9 (Russ). The hardening of cond. novolak resin K-18 contg. 10% hexamethylenetetramine proceeds differently at atm. and high pressure. DTA shows that the 1st stage process, which at atm. pressure occurs at 120-60, does not occur under pressure (3000-4000 kg/cm²). The DTA curves have a 2nd exothermic peak at 230-60 corresponding to the 2nd stage hardening at which resal-type resins are formed. CPJR -

Y1

REEL/FRAME
19840945

7 C.B

172 028 UNCLASSIFIED PROCESSING DATE--02OCT70
 TITLE--ON THE ANTIPHAGE SUBSTANCE ISOLATED FROM ACTINOMYCES GLOBISPORUS
 -U-
 AUTHOR--(04)-KURATSI, H., KUIMOVA, T.F., SKALOZUB, N.G., KRASILNIKOV, N.A.
 COUNTRY OF INFO--USSR
 SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 120-124
 DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PHAGE, ACTINOMYCES, ION EXCHANGE, CHROMATOGRAPHY, ANTIOXIDANT ADDITIVE, PROTEIN, DNA, RNA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1990/1441

STEP NO--UR/0220/70/019/001/0120/0124

CIRC ACCESSION NO--AP0109501

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--02OCT70

2/2 028

CIRC ACCESSION NO--AP0109501

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FURTHER PURIFICATION WAS CARRIED OUT ON THE RAW PREPARATION WITH ANTIPHAGE ACTIVITY ISOLATED FROM THE CULTURAL BROTH OF ACTINOMYCES GLOBISPORUS 81 VAR. A. THE PROCEDURE CONSISTED IN A STEPWISE FRACTIONATION WITH AMMONIUM SULPHATE AND ION EXCHANGE COLUMN CHROMATOGRAPHY ON DEAE-SEPHADEX A-50 WITH THE FOLLOWING RECYCLING CHROMATOGRAPHY ACCORDING TO OUR SCHEME. ALL STAGES OF PURIFICATION WERE CARRIED OUT AT 4-6 DEGREES WITH AN ADDITION OF 0.0002 B BETA-MERCAPTOETHANOL INTO BUFFER SOLUTIONS AND SEPHADEX COLUMNS AS A STABILIZER OR ANTIOXIDANT. THE HIGHLY ACTIVE ANTIPHAGE SUBSTANCE, ISOLATED FROM THIS STRAIN, WAS SHOWN TO BE OF PROTEIN NATURE WITH SPECIFICALLY NEUTRALIZED WITH DNA PREPARATIONS OF VARIOUS BASE COMPOSITION BUT NOT WITH RNA.

UNCLASSIFIED

USSR

UDC 63:576.8

MURONTSEV, G. S., DERZHINSKIY, A. R., KURAKHTANOVA, T. I., DUBOVAYA, L. P.,
and RUDAKOV, O. L., All Union Scientific Research Institute of Phytopathology,
Bol'shiye Vyazemy, Moscow Oblast

"Deep Cultivation and Antibiotic Activity of the Mycoparasite *Darluka filum*"

Moscow, Sel'skokhozyaystvennaya Biologiya, Vol 5, No 4, 1970, pp 579-582

Abstract: When grown in deep culture, the imperfect fungus *Darluka filum* (Biv-Bern) Cast., a hyperparasite of rust fungi, can synthesize at least four intracellular fungicidal antibiotics. The fungus grows on solid and liquid media with certain combinations of nitrogen and carbon sources, the most favorable being those with soybean meal (or corn extract), and glucose starch. In deep culture, *D. filum* synthesizes antibiotics that suppress the growth of yeasts and mycelial fungi of the genera *Alternaria*, *Beauveria*, *Botrytis*, *Cephalosporium*, *Cladosporium*, *Cryptococcus*, *Endothia*, *Fusarium*, *Gliocladium*, *Hansenula*, *Helminthosporium*, *Kabatiella*, *Monilia*, *Nematospora*, *Neurospora*, *Oospora*, *Penicillium*, *Pestalotia*, *Piricularia*, *Pichia*, *Pulularia*, *Rhizopus*, *Trichoderma*, *Verticillium*, *Torulapora*, *Schwanniomyces*, *Debaryomyces*, *Endomyces*, *Candida*, and *Saccharomyces*. Media containing glucose and peptone or 1/2

USSR

MUROMTSEV, G. S., Sel'skokhozyaystvennaya Biologiya, Vol 5, No 4, 1970, pp
579-582

soybean meal, combined with various carbon sources, are best for synthesizing
the antibiotics.

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- 25 -

UDC 646.510

USSR

R

KURAKIN, A. K., All-Union Institute of Light Alloys

"Effect of Volumetric Changes in the Process of Reaction Diffusion of Iron and Aluminum"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 2, Aug 70, p. 431-435

Abstract: Two cases of volumetric changes with the formation of an intermetallic layer between vacuum-smelted Armco iron and aluminum in the solid state upon reaction diffusion are studied. In both cases, the main mass of the intermetallic layer consisted of crystals of the phase FeAl₃ identically oriented with the (001) plane parallel to the substrate. Paper strips placed between the iron and aluminum were used as an inert marker to determine the direction of diffusion. The diffusion of aluminum and iron occurs mutually but with clear predominance of movement of iron atoms into the aluminum. Diffusion of aluminum with the addition of iron is also mutual, but with clear predominance of movement of aluminum atoms into the iron. In the former case, after annealing the aluminum detaches separated from the chemical composition; in the latter case this was not observed. The experimental data indicated that the different nature of the diffusion processes determined the quality of the joining of the metals.

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UDC 539.67

USSR

KEKALO, I. B., KURAKIN, I. S., and FAVSTOV, Yu. K.

"Effect of Heat Treatment on Magneto-elastic Damping in Certain Construction Steels"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka", 1970, pp 178-182

Abstract: It is shown that the vibration decrement of a series of steels at small stress amplitudes is maximal after hardening; at higher amplitudes, it is maximal after high-temperature annealing and normalizing. The effect of heat treatment on the magnetoelastic share of damping is considered. It is shown that the nonmagnetic share of damping decreases with increasing annealing temperature, while the damping share governed by magnetoelastic process increases. A relationship between these damping modes, the coercive force, and hardness is established. 6 figures, 2 references.

1/1

USSR

K

UDC 669.15+194.3:534-16

KEKALO, I. B., KURAKIN, I. S., FAVSTOV, Ya. K.

"The Effect of Heat Treatment on the Magnetoelastic Losses and Losses of a Non-magnetic Nature in Steel 30KhGSA in the Case of Mechanical Vibrations"

Kiev, Problemy Prochnosti, No 6, June 1970, pp 54-60

Abstract: Losses in magnetic vibrations brought about by magnetoelastic processes were isolated by means of magnetization. It was shown that the attenuation level in hardened and low-temperature (to 400° C) steel 30KhGSA, which can be used for making parts operating not only under variable loads but also in external magnetic fields of various intensities, was determined principally by losses of a nonmagnetic nature, and after tempering at temperatures in excess of 400° C, by losses brought about by magnetoelastic hysteresis. The relative input of magnetoelastic attenuation at high stresses into the general attenuation level in this steel was calculated after various kinds of heat treatment. Attenuation of a nonmagnetic nature decreases as the tempering temperature increases to 400° C, above this temperature the value of these attenuations is almost constant. The increase of attenuation at high stresses is almost constant. The increase of attenuation at high stresses as a result of tempering at temperatures of 520 and 600° C, as well as after normalizing, is due to an increase of losses for magnetoelastic hysteresis. A correlation is established among the attenuation characteristics, hardness, and the magnetic properties of the investigated steel.

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USSR

10 Jan 67

KIRAKIN, K. , Dep Min of the Electronics Industry USSR, and
VLADIMIRSKIY, S. , Dep Min of the Radio Industry USSR, reply to complaints
published in this newspaper.

Vechernyaya Moskva, 10 Jan 67, p 2, cols 7-9

(2) 12

Acc. Nr.

AP0034105

Abstracting Service:

CHEMICAL ABST. 4-70

Ref. Code

MR 0078

R

74180s Derivatographic method for determining the coordination numbers of some trivalent ions of rare earth elements. Krestov, G. A.; Kurabina, G. I. (USSR). Zh. Neorg. Khim. 1970, 15(1), 73-6 (Russ). A new method was developed for detn. of coordination nos. of ions of rare earth elements by DTA. Tri-valent Pr, Nd, Sm, Eu, Gd, Er, Yb, and Y ions are 6-coordinated. Calcn. of entropy (S) of a mole of H_2O close to a 3-valent ion, and of a mole of H_2O in pure solvent (S_1 and S_2 , resp.) showed that, with increasing radii of cations the value of S_1 decreases and approaches the value of S of ice (0.4 e.u.).

HMJR.

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18 d

REEL/FRAME

19710748

USSR

KURAKINA, I. V.

"Estimate of Quantiles of Certain Statistics Using the Monte Carlo Method"

Sluchayn. Protsessy i Stat. Vyvody [Random Processes and Statistical Conclusions -- Collection of Works], No 2, Tashkent, Fan Press, 1971, pp 34-36 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V177 by V. Pagurova).

Translation: In order to test the hypothesis of normality, a table of empirical values of p quantiles of order $p = 0.05, 0.025$ and 0.01 is presented for distributions of empirical statistics corresponding to the classical statistics of Kolmogorov, Smirnov, Mizes and Pirson, based on sample volumes of 10, 20, 30, 40 and 50. The quantiles were estimated using the Monte Carlo method with generation of pseudonormal numbers by an electronic machine.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DETERMINING THE WATER CONTENT OF POLAR ORGANIC SOLVENTS -U-
AUTHOR--KURAKOV, G.C. K
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 266,353
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--17MAR70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--WATER, MEASUREMENT, CHEMICAL PATENT, SILOXANE, ORGANIC SOLVENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1808 STEP NO--08/0402/70/000/000/0000/0000
CIRC ACCESSION NO--AA0132074
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AA0132074
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO ACCELERATE AND SIMPLIFY THE
METHOD OF ANAL. THE CRIT. TEMP. IS MEASURED OF A MIXT. CONSISTING OF THE
PURE POLAR SOLVENT AND OF AN IMMISCIBLE LIQ. E.G.
OCTAMETHYLCYCLOTETRASILOXANE. THEN THE CRIT. TEMP. IS MEASURED OF A
MIXT. CONSISTING OF A MOIST SOLVENT AND OF THE SAME IMMISCIBLE LIQ. THE
WATER CONTENT IS THEN ESTD. FROM THE DIFFERENCE OF THE VALUES OF THE
CRIT. TEMPS.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--1106070
TITLE--IMMEDIATE AND LONG TERM RESULTS OF SPLENECTOMY IN HEMOLYTIC ANEMIA
-U-
AUTHOR--(04)-SENCHILC, YE.A., BLINOVA, A.I., KURALEVA, V.V., ABDULKADYROVA,
A.S.
COUNTRY OF INFO--USSR
SOURCE--SOV MED 33(1): 72-77. 1970
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANEMIA, SURGERY, SPLEEN, HORMONE, CORTICOSTEROID, TEST,
HEMOLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0304

STEP NO--UR/C399/T0/033/001/C022/0077

CIRC ACCESSION NO--AP0135799

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135799
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. SPLENECTOMY WAS PERFORMED IN 55 PATIENTS WITH HEMOLYTIC ANEMIA, AND IN 41 IT WAS DONE FOR CONGENITAL MICROSPHEFCYTIC HEMOLYTIC ANEMIA WITH GOOD IMMEDIATE OPERATIVE RESULTS. IN 11 OF 14 PATIENTS WITH ACQUIRED AUTOIMMUNE FORM OF HEMOLYTIC ANEMIA IMMEDIATE RESULTS OF THE OPERATION WERE SATISFACTORY. REMOTE OUTCOMES OF SPLENECTOMY WERE STUDIED IN 40 PATIENTS. FOLLOWING SPLENECTOMY CLINICAL RECOVERY IN PATIENTS WITH CONGENITAL HEMOLYTIC ANEMIA OCCURRED IN 29 OUT OF 30 CASES. IN INSTANCES OF ACQUIRED AUTOIMMUNE HEMOLYTIC ANEMIA SPLENECTOMY HELPED TO IMPROVE THE CONDITION OF THE PATIENTS, WHILE SOME OF THEM DEMONSTRATED COMPLETE CLINICAL RECOVERY. MAINTENANCE THERAPY WITH CORTICOSTEROID HORMONES IS INDICATED POSTOPERATIVELY IN PATIENTS WITH ACQUIRED AUTOIMMUNE FORM OF HEMOLYTIC ANEMIA PRESENTING SYMPTOMS OF HEMOLYSIS AND CONTINUED POSITIVE COUMB'S TEST.
FACILITY: CLIN. SURG. HEMATOL., LENINGRAD RES. INST. HEMATOL. BLOOD TRANSFUS., LENINGRAD, USSR.

UNCLASSIFIED

KURAMOV, V.N.

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TECHNICAL TRANSLATION

1007 00111723 0035-02

17 00 02

ISSUING TITLE: PROCEEDINGS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1968

ISSUING TITLE: PROBLEMI FEEDBACKI INFORMATSII LAZERNYI REZONANSIVOM

AUTHOR: I. A. BERYGIN, ET AL.

SOURCE: KIEV CENTER OF LENIN STATE UNIVERSITY
ITEM# T.G. SCHECHENKO

Translated for PSTC by ACS1

NOTICE

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USSR

UDC 547.26'118:541.49

KURAMSHIN, I. Ya., MURATOVA, A. A., YARKOVA, E. G., MUSINA, A. A., IZMAYLOVA, F. Kh., and PUDOVIK, A. N., Kazan' State University imeni V. I. Ul'yanov-Lenin

"S-Alkyl Esters of the Thio- and Dithioacids of Phosphorus (IV) and Their Complexes With Tin"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1456-1466

Abstract: A series of thio- and dithioesters of thiophosphoric and thio- and dithiophosphinic acids was synthesized and characterized. Their IR and NMR spectra were studied. It was shown that the conformational isomerism in S-methyldialkylthio- and dithiophosphinates is caused by the P-C bond rotation. Complexes of S-alkylthiophosphates and thiophosphinates with tin tetra- and alkylhalides were obtained. Their IR and NMR spectra were studied. It was shown that in solutions the complexes $[R_2P(O)(SCH_3)]_2SnX_4$ exist as mixtures of geometrical isomers. It was shown that with coordination, a redistribution of the electronic density of the P-S bond takes place on account of the inductive and mesomeric effects. Both in the free state and as complexes the thioesters $R_2P(O)(SR')$ exhibit conformational isomerism. Based on the IR and NMR data, the electron donor ability of S-methyldialkyl-dithiophosphinates in relationship to tin halides was analyzed.

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BASHKIROV, S. H., KURAMSHIN, I. YA., MANAPOV, R. A., MURATOVA, A. A., SAFIN, I. A., and KHRAMOV, A. S., Kazan' State University, Kazan'

"The Effect of the Ligand Size on the Magnitude of the Quadrupole Splitting of the Nuclear Gamma Resonance Spectra of S-Alkyl Esters of Thio- and Dithio-phosphorus Acids with Stannic Tetrahalides"

Moscow, Zhurnal Strukturnoy Khimii, Vol 14, No 5, Sep-Oct 73, pp 935-937

Abstract: The nuclear gamma resonance spectra of compounds $/R_2P(Y)(SR')/_2 \cdot SnX_4$ (R = Me, Et, n-Pr, i-Pr, Bu, EtO, n-PrO, i-PrO, BuO; R' = Me, Et, Pr; Y = O, S; X = Cl, Br) were determined. With an increasing volume of R in $R_2P(O)(SR')$ of the complex, an electrical field gradient at the Sn nucleus developed which caused quadrupole splitting. This effect depended on the geometric configuration of the complexes and also on the spatial configuration of the organic ligand. In complexes $/R_2P(S)SMe/_2 \cdot SnX_4$ (R = Et, i-Pr, n-Bu), quadrupole splitting did not take place irrespective of the volume of R, although the donor-acceptor interaction was smaller for S than for O. \rightarrow Sn.

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FUDOVIK, A. N., MURATOVA, A. A., KURAMSHIN, I. Ya., YARKOVA, E. G., and VINOGRADOV, L. I., Kazan State University imeni V. I. Ul'yanova - Lenina

"Reaction of α -Methylmethylphosphones of Dialkylphosphinic and Dialkylthio-phosphonic Acids With Stannic Chloride and Stannic Bromide"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 5, 1972, pp 979-986

Abstract: The title reaction -- for alkyl = methyl, butyl, cyclohexyl, and phenyl -- proceeds in methylene chloride forming complexes of the general form $[R, R'P(O)OH]_2SnX_4$ or $[RR'P(O)SH]_2SnX_4$ for equimolar mixtures of the two starting compounds. IR studies of the products of a starting mixture having a 2:1 ratio of reactants indicate that dimerization has occurred. When the reaction occurs with the elimination of the halogen acids, the salt $[RR'P(O)]_2SnX_2$ is formed which indicates an intramolecular rearrangement resulting in a polymer. A number of conclusions about the nature of these complexes were drawn from detailed NMR and IR studies.

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USSR

UDC 547.241

REMIZOV, A. B., KURAMSHIN, I. YA., and FISIMAN, A. I., Kazan'
State University Imeni V. I. Ul'yanov-Lenin

"Spectroscopical Study of the Internal Rotation Around the P-C Bond
In a Series of Chlorophosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 6, Jun 73,
p 1406

Abstract: The IR spectra of the phosphines $\text{CH}_2\text{ClPCL}_2$, $\text{C}_2\text{H}_5\text{PCL}_2$
and $(\text{C}_2\text{H}_5)_2\text{PCL}$ show changes in relative intensities of the adsorption
bands which appear to depend on the aggregate state and temperature.
Analysis of the experimental material led to the conclusion that
 $\text{CH}_2\text{ClPCL}_2$, $\text{C}_2\text{H}_5\text{PCL}_2$ and $(\text{C}_2\text{H}_5)_2\text{PCL}$ exist as rotational isomers in
solutions and in liquid state. No indications have been found for
rotational isomers of $\text{C}_2\text{H}_5\text{PPhCl}$.

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Organophosphorus Compounds

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UDC 547.241:541.49

PUDOVIK, A. N., KURAMSHIN, I. YA., YARKOVA, E. G., MURATOVA, A. A., MISINA, A. A., and MANAPOV, R. A., Kazan' State University Imeni V. I. Ul'yanov-Lenin

"Study of the Reaction of Methyl Ester and Acid Chloride of Dimethylphosphinic Acid and Their Thione Analogues With Tin Halides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43(105), No 6, Jun 73, pp 1229-1236

Abstract: Complexes of O-methyldimethylphosphinate and acid chloride of dimethylphosphinic acid with tin tetra- and alkyl halides have been obtained and characterized. Their IR, NMR, and NGR spectra have been studied, establishing that the coordination is due to the donor properties of the phosphoryl group oxygen. It has been shown that $\Delta \nu (P=O) / \nu_o (P=O)$ of the O-methyldimethylphosphinate and acid chloride of the dimethylphosphinic acid changes symbotically with $\sum \sigma^*$ of the substituents at the tin atom. A linear relationship has been established for the stannic chloride complexes with dimethylphosphinic acid between $\Delta \nu (P=O) / \nu_o (P=O)$ and $\sum \sigma_p$ of the substituents at the phosphorus atom. It has been shown that the thiophosphoryl sulfur has a lower donor ability than the phosphoryl oxygen. Geometrical structure of the obtained complexes has been discussed.

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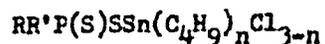
UDC 547.26:118.541.49

PUDOVIK, A. N., MURATOVA, A. A., KURAMSHIN, I. YA., and YARKOVA, E. G.,
Kazan State University imeni V. P. UI'yanova-Lshina

"The Interaction of O,O-dimethyl Methylphosphonates With Ten Salts of the
Dithiol Acids of Phosphorous"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2408-2412

Abstract: A study was made of the acceptor characteristics of ten salts of
the title compounds having the general formula



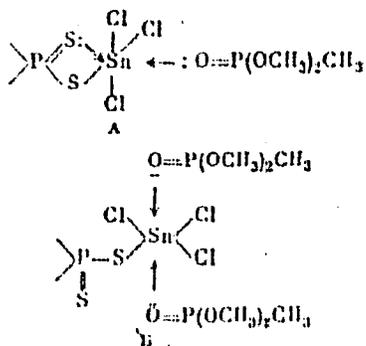
Where R = R' = CH₃O, C₂H₅O; R = CH₃, R' = CH₃O; for n = 0, 1, or 2

and R₂P(S)S₂SnCl₂ for R = C₂H₅ and C₃H₇, (C₄H₉)_nSnCl_{3-n}. The former can
accept one pair of electrons and will therefore form a 1:1 complex with the
phosphorus ethers; the latter two will accept 2 pairs and therefore form
1:2 complexes with these ethers. The electron donors were dimethyl ethers of
methylphosphonic acids. Ratios of 1:1 and 1:2 of the above reagents were
used for the following reaction:

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PUDOVIK, A. N., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2408-2412



A comparison of the spectra indicates the 1:1 complexes have a weaker tendency to dissociate than the 1:2 complexes. Preparation and physical data for the above compounds are given.

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USSR

UDC 541.6:547.26'118

REMIZOV, A. B., KURAMSHIN, I. YA., AGANOV, A. V., and BUIENKO, G. G., Kazan State University "Imeni V. I. Ul'yanov-Lenin

"Rotational Isomerism and Internal Rotation About the P-O, the P-S, and the P-C Bond in $\text{CH}_3\text{XP}(=\text{Y})(\text{CH}_3)_2$ and $\text{CH SP}(=\text{Y})(\text{C}_2\text{H}_5)_2$ for (X, Y = O, S)"

Moscow, Doklady Akademii Nauk SSSR, Vol 208, No 5, 1973, pp 1118-1120

Abstract: IR and NMR spectra and dipole moments were used to study the influence of the groups attached to the P atom on the nature of the internal rotation around the P-X bond. IR spectra are shown for the title compound in the gaseous, liquid, and solid phases and in nonpolar and polar solutions. A study of the temperature effect showed that O-methyl dimethylphosphinate and its thione and thiol analogs remain predominately in one configuration. A variety of constants are given for the studied compounds.

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UDC 541.6+541.49

FUDOVIK, A. N., KURAMSHIN, I. YA., MJRATOVA, A. A., MANAPOV, R. A., YARKOVA, E. G., and MIRSAITOVA, G. M., Kazan' State University Iman V. I. Ul'yanov-Lenin

"S-Alkyl Diethylthiophosphinites and Their Complexes with Stannic Chloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, p 1196

Abstract: IR spectra were studied of S-ethyl diethylthiophosphinite (I), S-n-propyl diethylphosphinite (II), diethylchlorophosphine (III), diethyl sulfide (IV) and tributylphosphine (V) in liquid state using solvents with different polarity. Analysis of the data on (I) and (II) indicated that these compounds exist as mixtures of two conformers arising from the rotation around the P-C bond, even though the rotation around the S-C bond could not be excluded. Following complexes were synthesized and studied: $[(C_2H_5)_2PR]_2SnCl_4$ where $R=C_2H_5S$, $n-C_3H_7S$, $[(C_2H_5)_2S]_2SnCl_4$ and $[(C_4H_9)_3P]_2SnCl_4$. These complexes were formed because of the donor properties of the phosphorus atom.

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UDC 547.26'118

PUDOVIK, A. N., MURATOVA, A. A., ~~KURAMSHIN, I. Ya.~~, and YARKOVA, E. G.,
Kazan' State University imeni V. I. Lenin-Ul'yanov

"IR-Spectral Study of the Reaction of Some Methylphosphonic Acid Chlorides
With Tin Tetrachloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 317-322

Abstract: The authors investigated the reaction of stannic tetrachloride with methylmonothiophosphonic acid dichloride and with the acid chlorides of O,O'-dimethylmonothiophosphoric, O-methylmethyl-, O-n.-butylmethyl-, O-isobutylmethyl-, and O-sec.-butylmethylmonothiophosphonic acids. It is found that the donor capacity of the phosphoryl oxygen with respect to stannic chloride is greater than that of the thiophosphoryl group which increases with a reduction in the $\Sigma\sigma_p$ of the substituents at the phosphorus atom. It is shown that when O-alkylmethylmonothiophosphonic acid chlorides react with stannic chloride, formation of an unstable intermediate complex via the phosphoryl group takes place on the first stage, while thion-thiol isomerization and dealkylation takes place at the second step of the reaction.

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MURATOVA, A. A., YARKOVA, E. G., ~~KURANSHIN, I. YA.~~, and PUDOVIK, A. N.,
Kazan' State University imeni V. I. Ul'yanov-Lenin

"Study of the Reaction of Phosphorus Monothioacids With Tin Tetrahalides"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1668-1672

Abstract: For purposes of establishing the coordination center in monothio-phosphoric acid esters during their reaction with tin tetrahalides, the authors studied the IR spectra of complexes of O,O-diethyl-, O,O-di-butyl-monothio phosphates and O-methyl methylmonothio phosphomate with stannic chloride and bromide, as well as the complex of O,O,S-triethyl thiophosphate with stannic chloride. It was found that complexing is due to donor properties of the oxygen of the phosphoryl group. The absorption bands of complexes of the acids with stannic chloride and bromide at 2470-2500 cm^{-1} and solutions in chloroform and carbon tetrachloride at $\sim 2570 \text{ cm}^{-1}$ and solutions in benzene at $\sim 2520 \text{ cm}^{-1}$ are assigned to stretching vibrations of the sulfhydryl group.

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MURATOVA, A. A., KURAMSHIN, I. Ya., YARKOVA, E. G., and PUDOVIK, A. N.,
Kazan' State University imeni V. I. Ul'yanov-Lenin

"Reaction of Some Dithiophosphorus Acids With Tin Tetrahalides"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1967-1972

Abstract: A study is presented of the reaction of O,O-dialkyldithiophosphoric (Alk=CH₃, C₂H₅, iso-C₄H₉) and O-methylmethyldithiophosphonic acids with tin chloride and bromide in 2:1 and 1:1 ratios. The reaction results in the formation of products of the composition R(R')P(S)SSnX₃. The reaction of O,O-dimethyldithiophosphoric acid with tin bromide results in thione-thiol isomerization concurrent with elimination of hydrogen bromide. It is shown that the donor capacity of thiophosphoryl sulfur of R(R')P(S)S- to trichloro- and tribromotin salts increases with an increase in the total +I effect of the substituents at the phosphorus atom. The dissolution of the O,O-dimethyldithiophosphoric acid -- tin bromide system in chloroform is attended by a considerable drop in the absorption intensity at 1150 cm⁻¹ and an increase of absorption in the 3000-3600 cm⁻¹ region which points to dissociation of the isomerized complex. These spectral changes suggest that the free O,S-dimethyldithiophosphoric acid in chloroform is primarily of a thion form, which correlates well with literature data.

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VASIL'YEV, L. A., KURAMSHIN, T. A., NAZAROVA, L. P. and TRAVNIKOVA, L. I.

"Measurement of Pressure of Light and Aerodynamic Forces Acting on Complex Shape Body in Free-Molecule Flow"

Leningrad, Aerodinamika Razrezhennykh Gasov, 1970, pp 113-118

Abstract: The principle of the method is to measure the intensity of reflected light from an illuminated body in all directions in space, then to calculate the pressure of light force by integrating the intensity of light.

A model of the body to be investigated made of the same material is placed on a gimbals mount, it is illuminated by a collimator mounted in a fixed position relative to the model. The model is rotated in all directions relative to a stationary photocell located at a distance exceeding 50 times the size of the model. The intensity of reflected light measured by the photocell is integrated by means of a computer.

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VASIL'YEV, L. A., et al., Aerodinamika Razrezhennykh Gasov, 1970, pp 113-118

As to the aerodynamic forces it has been shown in reference [17] that they can be determined by measuring the pressure of light, provided that the distribution of reflected light is similar to the distribution of molecules reflected from the body during its travel through the free-molecule flux.

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UDC 66.023-21.001.24

KONOVALOVA, A. I., KURANOV, B. A., LIFSHITS, L. A. (Balashikha)

"Temperature Stresses in the Pole of a Spherical Reservoir During Chilling by a Liquefied Gas"

Kiev, Problemy Prochnosti, No 12, December 1971, pp 19-23

Abstract: The article deals with the problem of temperature stresses in a spherical reservoir at the initial moment of pouring in the liquefied gas. Analyzing the temperature fields in the vessel at the initial moment of pouring permits the problem to be reduced to that of linking a hollow spherical cupola to an infinite spherical shell with an opening in the presence of a temperature-field discontinuity at the line of linkage. Formulas are given for determination of the basic internal force factors. Analysis of the experimental data shows that, when a product with a temperature of -95°C and lower is poured into the reservoir, considerable temperature stresses originate in the structure, that are capable of causing the destruction of the reservoir within a fixed number of chilling cycles. Preliminary chilling of the container wall can solve this problem. However, considering the considerable technological and design difficulties of prechilling, first priority must be directed to the development of methods of evaluating the thermal

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KONOVALOVA, A. I., et al., Problemy Prochnosti, No 12, Dec 1971, pp 19-23

fatigue strength of the vessels for selecting the minimum necessary level of prechilling. 5 figures. 4 references.

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